1. Determine whether the graph of each function is symmetric about the y-axis, the origin, or neither:

a) $y = x^{1/5}$ b) $y = x^{2/5}$

c) $y = x^2 - 2x - 1$ d) $y = e^{-x^2}$

2. Determine whether each function is even, odd, or neither:

a) $y = x^2 + 1$ b) $y = x^5 - x^3 - x$

c) $y = 1 - \cos x$ d) $y = (\sec x)(\tan x)$

e) $y = \dfrac{x^4 + 1}{x^3 - 2x}$ f) $y = 1 - \sin x$

g) $y = x + \cos x$ h) $y = \sqrt{x^4 - 1}$

3. For each function below, find the domain, range, and sketch a graph of the function:

a) $y = |x| - 2$ b) $y = -2 + \sqrt{1 - x}$

c) $y = \sqrt{16 - x^2}$ d) $y = 3^{2-x} + 1$

e) $y = 2e^{-x} - 3$ f) $y = \tan(2x - \pi)$

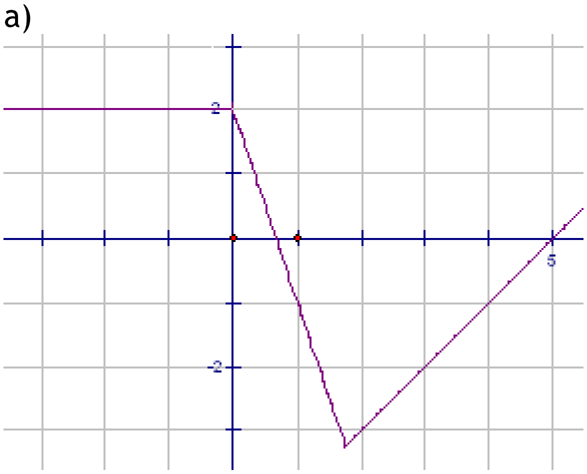
g) $y = 2\sin(3x + \pi) - 1$ h) $y = x^{2/5}$

i) $y = \ln(x - 3) + 1$ j) $y = -1 + \sqrt[3]{2 - x}$

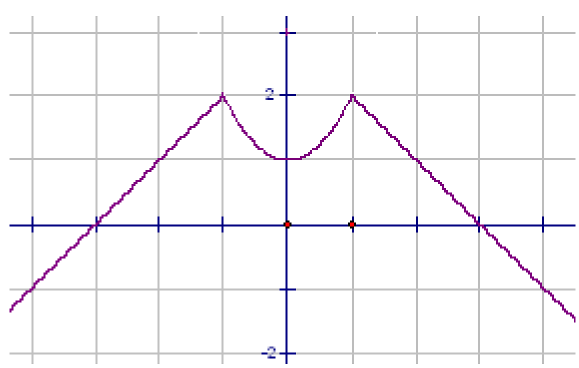
l) $y = \begin{cases} \sqrt{-x}, & -4 \le x \le 0 \\ \sqrt{x}, & 0 < x \le 4 \end{cases}$ l) $y = \begin{cases} -x - 2, & -2 \le x \le -1 \\ x, & -1 < x \le 1 \\ -x + 2, & 1 < x \le 2 \end{cases}$

4. Write a piecewise formula for each function below:

a)



b)



5. If $f(x) = \dfrac{1}{x}$ and $g(x) = \dfrac{1}{\sqrt{x+2}}$, find:
   - a) $(f \circ g)(-1)$
   - b) $(g \circ f)(2)$
   - c) $(f \circ f)(x)$
   - d) $(g \circ g)(x)$

6. If $f(x) = 2 - x$ and $g(x) = \sqrt[3]{x+1}$, find:
   - a) $(f \circ g)(-1)$
   - b) $(g \circ f)(2)$
   - c) $(f \circ f)(x)$
   - d) $(g \circ g)(x)$

7. If $f(x) = 2 - x^2$ and $g(x) = \sqrt{x+2}$, find:
   - a) a formula for $f \circ g$
   - b) a formula for $g \circ f$

8. If $f(x) = \sqrt{x}$ and $g(x) = \sqrt{1-x}$, find:
   - a) a formula for $f \circ g$
   - b) a formula for $g \circ f$

9. If $f(x) = 2 - 3x$, then
   - a) find $f^{-1}(x)$ and show that $(f \circ f^{-1})(x) = (f^{-1} \circ f)(x) = x$
   - b) sketch a graph of f and f^{-1}.

10. If $f(x) = (x+2)^2,\ x \geq -2$, then
    - a. find $f^{-1}(x)$ and show that $(f \circ f^{-1})(x) = (f^{-1} \circ f)(x) = x$
    - b. sketch a graph of f and f^{-1}.